

REMARKS and ARGUMENTS

The present application was filed on November 15, 2001 with claims 1 - 42. Claims 1, 2, 19, 21 - 31, 38 - 42 have been cancelled herein. By this amendment, claims 3, 4, 6, 10, 11, 12 and 20 have been amended. Reconsideration is respectfully requested.

Allowable Claims

It was stated in the most recent office action that claims 13-18, 26, and 32-37 were allowable. This is noted with appreciation.

Claim Rejections 35 U.S.C. §112

Claim 39 was rejected under 35 U.S.C. §112 as being indefinite. Claim 39 has been cancelled, as noted above, in order to place this application in condition for allowance and not for reasons of patentability.

Claim Rejections - 35 USC § 102

Claims 1, 2, 4 - 12, 20 - 25, 27 - 31, 39 and 41 were rejected under 35 U.S.C. §102(b) as being anticipated by *Otsuka et al.* '797. Claims 1, 2, 19, 21 - 25, 27 - 31, 39 and 41 have been cancelled, as mentioned hereinabove, in order to place this application in condition for allowance and not for reasons of patentability.

Applicant respectfully traverses the rejection of claims 4-12 and 20, in light of newly amended claim 3, discussed hereinafter. Claims 4, 6, 10 -12 and 20 have been amended, as is described hereinafter with regard to newly amended claim 3. Claims 5, 7, 8, 9 are unchanged, as is described hereinafter with regard to newly amended claim 3.

Claim Rejections - 35 USC § 103

Claim 3 was rejected under 35 U.S.C. §103(a) as being unpatentable over *Otsuka, et al.* '797, in view of *Maloney, et al.* '358. It was stated that *Otsuka* lacked a teaching that open loop fueling is adjusted within five seconds of a cold start of the engine, and *Maloney et al.* '358

disclosed a fuel control for an internal combustion engine wherein open loop fueling is adjusted within a cold starting period.

As the examiner is well aware, for a rejection based upon 35 U.S.C. §103(a) to prevail, the examiner must meet the burden of establishing a *prima facie* case of obviousness, i.e. that all elements of the invention are disclosed in the prior art; that the prior art relied upon, coupled with knowledge generally available in the art at the time of the invention, contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or combine references; and that the proposed modification of the prior art had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made. *In re Fine*, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988); *In re Wilson*, 165 USPQ2d 494, 496 (CCPA 1970); *Amgen v. Chugai Pharmaceuticals Co.*, 927 USPQ2d 1016, 1023 (Fed. Cir. 1996). Furthermore, “[i]f the proposed modification or combination would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious.” (*In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959) as quoted in MPEP §2143.01.)

Claim 3 has been amended herein to incorporate the subject matter of claims 1 and 2. Applicant respectfully traverses any rejection of newly amended claim 3, in view of *Otsuka et al.* ‘797 and *Maloney et al.* ‘358. Newly amended claim 3 sets forth a method for fuel driveability index detection, the method comprising, *inter alia*, measuring an exhaust gas feedstream of an internal combustion engine with an oxygen sensor, determining a first voltage trend based on a first input signal and a second input signal, and determining whether the voltage trend is decreasing at a rate greater than a threshold rate. The method then adjusts open loop fueling if the voltage trend is decreasing at a rate greater than the voltage threshold rate. Adjustment of open loop fueling occurs within about five seconds of a cold start of the internal combustion engine.

Applicant respectfully argues that one skilled in the art would NOT have been motivated to modify *Otsuka et al.* ‘797 to incorporate *Maloney et al.* ‘358, because there was no reasonable expectation of success to achieve the result obtained by combining the references. Specifically there was no reasonable expectation to measure an exhaust gas feedstream with an oxygen sensor

within about five seconds of a cold start of an internal combustion engine, and be able to adjust open loop fueling based upon a voltage trend that is determined based on a first input signal and a second input signal of the oxygen sensor.

In contradistinction to the present invention described in Claim 3, *Otsuka et al.* '797 teaches the ECU monitors condition of activation of the O₂ sensor (Col. 5, lines 7-8) and for accurate air/fuel ratio feedback control, it is a requisite that the O₂ sensor is fully activated and the engine is in a warmed up condition. (See Col. 5, line 11-13). Furthermore, air/fuel ratio feedback control is not initiated until after the conditions are fulfilled that the sensor produces an activation signal when its output voltage lowers to a predetermined voltage V_x , a timer counts for a predetermined period of time, and coolant temperature T_w increases up to a predetermined value T_{wx} . (See Col. 5, lines 24 -32). Other art cited previously by the examiner recites the same phenomena, i.e.: during starting and cold idling, such feedback from the EGO sensor is not available (*Meyer, et al.* '579, Col. 1, lines 18-20); during cold start conditions neither the exhaust gas oxygen (EGO) sensor nor the catalyst is active (*Rado* '349, Col. 1, lines 20-22); as is generally understood in the art, the exhaust gas sensor becomes active a period of time following an engine cold start (*Ament et al.* '396, Col. 4, lines 18-21). As previously stated, the cited art offers no reasonable expectation to measure an exhaust gas feedstream with an oxygen sensor within about five seconds of a cold start of an internal combustion engine, and be able to adjust open loop fueling based upon a voltage trend that is determined based on a first input signal and a second input signal of the oxygen sensor.

Maloney et al. '358 teach a method of operation for an internal combustion engine having an open-loop fuel control for maintaining an air/fuel ratio of said engine at a target value during engine starting and warm-up, wherein a variation or surge of engine speed serves as an indicator of usage of high driveability index fuel. (See claim 1, Col. 6, lines 4-24). As a matter of fact, *Maloney et al.* '358 expressly rejects use of input from an oxygen sensor, saying that during cold start and warmup of the engine, the exhaust gas oxygen sensor is inoperative. (See Col. 3, lines 8, 9). *Maloney et al.* '358 distinctly does not contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or combine the invention of *Maloney* and

Otsuka. Therefore, newly amended claim 3 is patentably distinguishable from the art cited thereagainst, and consideration is earnestly sought.

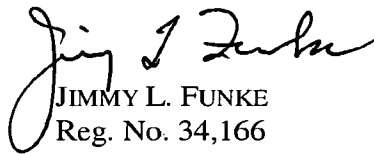
Claims 4, 6, 10, 11, and 12 have been amended to be dependent upon now allowable claim 3; therefore Claims 4, 6, 10, 11, and 12 are allowable for the same reasons as set forth with respect to claim 3. Claim 5 is dependent upon now allowable claim 4; claims 7 and 8 are dependent upon now allowable claim 6; claim 9 is dependent upon now allowable claim 8. Therefore claims 5, 7, 8, and 9 are allowable for the same reasons as set forth with respect to claim 3.

Claim 20 has been amended to incorporate the subject matter of claims 21 and 22, and is patentably distinguishable from the prior art for the same reasons as set forth with respect to claim 3; therefore claim 20 is now allowable.

Conclusion

For all of the above reasons, claims 3-18, 20, and 32-37 are patentably distinguishable over the prior art cited thereagainst. Reconsideration and allowance is respectfully requested. A Notice of Allowance is earnestly solicited. If the Examiner believes that a telephone interview would be beneficial, please contact the undersigned at the number listed. Please charge any necessary fees, including any extension of time, or any other fee deficiencies to Delphi Technologies, Inc., Deposit Account No. 50-0831.

Respectfully submitted,



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